

The opinion in support of the decision being entered today was **not** written for publication and is **not** binding precedent of the Board.

Paper No. 22

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JONATHAN S. ROSE, KENNETH T. PICONE,
and THOMAS G. ORE

Appeal No. 2001-1895
Application No. 09/235,180

ON BRIEF

Before COHEN, ABRAMS, and FRANKFORT, Administrative Patent Judges.
ABRAMS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 6 and 7, as amended after the final rejection. Claims 1-5 have been allowed and claims 8-12 have been withdrawn from consideration as being directed to a non-elected species.

We AFFIRM.

BACKGROUND

The appellants' invention relates to a method of synchronized shifting between a plurality of gears. An understanding of the invention can be derived from a reading of claim 6, which appears in the appendix to the Brief.

The prior art reference of record relied upon by the examiner in rejecting the appealed claims is:

Morscheck	5,641,044	Jun. 24, 1997
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Claims 6 and 7 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Morscheck.

Rather than reiterate the conflicting viewpoints advanced by the examiner and the appellants regarding the above-noted rejection, we make reference to the Answer (Paper No. 19) and the final rejection (Paper No. 5) for the examiner's complete reasoning in support of the rejection, and to the Brief (Paper No. 15) and Reply Brief (Paper No. 20) for the appellants' arguments thereagainst.

OPINION

In reaching our decision in this appeal, we have given careful consideration to the appellants' specification and claims, to the applied prior art reference, and to the respective positions articulated by the appellants and the examiner. As a consequence of our review, we make the determinations which follow.

Claim 6 is directed to a method of shifting between a plurality of gears comprising decoupling a first gear and shaft coupled together by a first set of pins, synchronizing a second gear and the shaft, and coupling the second gear and the shaft. The method requires the use of first and second sets of pins, each pin having a small diameter pin surface and a large diameter pin surface with a blocking pin surface therebetween. The asserted advantage and the details of construction and operation of the appellants' system are set forth in the specification, and those of Morscheck have been discussed in the Briefs and in the Answer. We therefore see no need to set them forth here. The appellants have characterized the issue before us in the following manner on page 3 of the Brief:

The issue on appeal is whether Morscheck discloses steps b) and d) of claim 6. More specifically, the issue is whether Morscheck discloses a shift sequence that begins synchronization by engaging the blocking surfaces of a set of pins without first engaging the small diameter surfaces of those same pins, as claimed by Applicant (emphasis added).

With regard to Morscheck, it is the examiner's position that synchronization begins when the synchronizer cones make contact with the friction surface on the inner periphery of the cone carried by the rotating gear, and that such occurs in the Morscheck system in accordance with the terms of the appellants' claim 6 in view of the fact that when the springs that are interposed between the pins and the synchronizer cones are compressed by the movement of the shift collar, they cause frictional contact to be made between the synchronizer cones and the cone element of the gear train. The appellants argue that the

patent does not explicitly explain that this is the case, and therefore step (d) of claim 6 is not met and the reference does not anticipate the claimed subject matter. We find ourselves in agreement with the examiner's conclusion. Our reasoning follows.

It is important to note that the extent of the argument raised by the appellants in opposition to the examiner's position is whether Morscheck begins synchronization of a first gear before the shift collar has engaged the small diameter surfaces of the pins associated with a second gear and we, as did the examiner, have evaluated Morscheck on that basis. The Morscheck method is explained in columns 6 and 7 and is illustrated in Figures 7 through 10. Figures 7 and 7a show the method at the point immediately after the decoupling of the first gear from the shaft and prior to the coupling of the second gear thereto. At this point, shift collar 44 is in engagement with a large diameter surface of the first pin and is moving to the left, as shown. The shift collar also is in engagement with a small diameter surface on the second pin. Springs 114 and 124 appear not to be compressed at this point, for coupling member 32 is centered. As the shift collar moves further to the left it abuts ramp 98 and thereafter begins to move pin assembly 64 leftwardly, compressing the spring and urging synchronizer cone 52 toward the inner cone surface of cup member 60. The shift collar subsequently ascends ramp 98 and abuts ramp 96, as is shown in Figure 8. This sequence of events is explained in column 6, beginning at line 43, in the following manner:

In FIGS. 7-7A . . . the apertures 48 and clutch plate 44 are still aligned with and in contact with the outer diameter surface of large diameter portion 82 of the spring pin assemblies 66 and will remain in contact therewith during continued axial leftward travel of the clutch plate 44 for an axial distance 130 equal to about 0.045-0.075 inch. Simultaneously, the ramped portions 104 of the set of apertures 46 have contacted the ramps 98 on the spring pin assemblies 64 intermediate the small diameter portion 70 and the intermediate diameter portion 72 thereof. During the next axial leftward travel of distance 130, the ring and pin assembly 128 is not free to rotate sufficiently to cause apertures 46 to circumferentially align with intermediate diameter portions 72 of pin assemblies 64. Accordingly, further axial movement of the clutch collar 44 in the leftward direction from the position shown in FIGS. 7-7A will cause axial displacement of the sliding collar 108 against the bias of spring 114, which will result in urging of the synchronizer ring and synchronizer pin assembly 128 leftwardly to urge the conical friction surfaces of synchronizer ring 52 into frictional contact with the corresponding surface 56 of cup 60 associated with gear 18 (emphasis added).

It is our opinion that this explanation, and particularly the final seven lines quoted above, supports the conclusion that at some point during movement of the clutch collar over the distance 130 the facing friction surfaces on elements 52 and 60 are placed into frictional contact with one another and the synchronizing of the shaft with the second gear begins. Since the clutch collar does not move off of large diameter surface 82 until after distance 130 has been traversed, Morscheck appears to operate in accordance with the requirements of claim 6, including step (d), and thus the reference anticipates the subject matter recited in the claim.

In arriving at this conclusion we have carefully considered the appellants' argument. However, we agree with the examiner that the reference cannot be discounted simply

because it does not illustrate the precise point at which each of the claimed method steps occur. Nor, because of the explanation from the patent quoted above, is there reason to believe that the conclusion is merely guesswork, as alleged by the appellants. A reference anticipates a claim if it discloses the claimed invention such that a skilled artisan could take its teachings in combination with his own knowledge of the particular art and be in possession of the invention. In re Graves, 69 F.3d 1147, 1152, 36 USPQ2d 1697, 1701 (Fed. Cir. 1995), cert. denied, 116 S.Ct. 1362 (1996), quoting from In re LeGrice, 301 F.2d 929, 936, 133 USPQ 365, 372 (CCPA 1962). In this regard, the appellants have presented no evidence which would support a conclusion that even though frictional contact between the two conical surfaces has been achieved, as described in the above quotation from the specification, synchronization actually has not begun.

The rejection of claim 6 is sustained. In view of the fact that the appellants have chosen to group claim 7 with claim 6 (Brief, page 3), we also will sustain the rejection of claim 7.

SUMMARY

The rejection is sustained.

The decision of the examiner is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED

IRWIN CHARLES COHEN
Administrative Patent Judge

NEAL E. ABRAMS
Administrative Patent Judge

CHARLES E. FRANKFORT
Administrative Patent Judge

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Birmingham, MI 48009

APPEAL NO. 2001-0333 - JUDGE ABRAMS
APPLICATION NO. 09/064,962

APJ ABRAMS

APJ COHEN

APJ FRANKFORT

DECISION: **AFFIRMED**

Prepared By:

DRAFT TYPED: 28 Jun 02

FINAL TYPED: